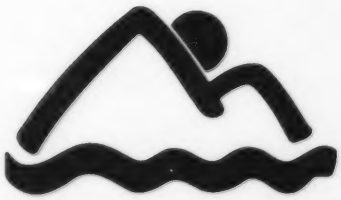
BC Environment

Beverage Container Recovery System

Public Agency Cost Estimates



British Columbia
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A Universal Container Return System for British Columbia

Municipal Waste Branch
Environmental Protection Division
B.C. Environment
April 1992

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1

Introduction

In 1991, Peat Marwick Stevenson & Kellogg studied the cost and management implications of container depot recovery systems in British Columbia. On behalf of the beverage industry we developed scenarios for a variety of combinations of containers and beverage types. The different parties of the beverage industry could not agree on a single universal system. Beer producers were unwilling to participate voluntarily in any system that would increase their costs. Milk and juice producers (who had been promised exemption from deposit legislation by the government of the day) were unwilling to accept any system requiring deposits for their containers.

After the change of government at the end of 1991, we were asked to carry out research into the concerns and desires of the public. Based on public comments and direction from management of the Ministry of Environment, Lands and Parks, we recalculated the cost implications of a universal container recovery system.

The proposed system assumes:

- Recovery will be managed by a public authority referred to as the "Container Agency."
- All beverage containers (refillable, recyclable and non-recyclable) are subject to deposit legislation.
- Consumers may return unlimited quantities of all container types for full refund to a network of 100-150 universal container depots.
- Retailers will be required to accept for full legislated refund small quantities of refillable and recyclable containers (for which service they will receive a fee).
- Deposits are the same for all container types but refunds are scaled to reflect the declining desirability of recyclable and non-recyclable container materials, compared with refillables.

The results of the focus groups conducted by our associates, Canadian Facts, are contained in a separate report. This report contains the results of our financial evaluations. For comparison purposes, we include a revised option of return to depot only, with a larger number of depots than assumed in our analysis of last year.

II

Highlights

A. An overview of the system

The proposed container recovery system contains the following elements:

The Container Agency
Distributors
Retailers
Depots
Consolidation centres
Transport systems
Reverse vending machines.

The Container Agency will provide administrative, control and accounting services. Management will be responsible for maintaining the financial integrity of the recovery system. It will contract with the private sector and with non-profit service agencies to provide convenient depot services throughout the province.

Distributors will regularly report sales to the Agency and will forward deposits and recovery fees.

Retailers will be required to accept up to 24 refillable and/or recyclable containers per day per person. In practice this means glass, plastic, aluminum and steel cans. Retailers will receive a fee for their services. The analysis assumes that this is set at a level equal to two-thirds of the weighted average depot cost for each type of container. Retailers will not be required to accept non-recyclable materials such as aseptic packs and milk cartons (which must be returned to depots).

The Ministry envisages a network of 100-150 depots throughout the province. Depots will be required to accept unlimited quantities of refillable, recyclable and non-recyclable containers for full legislated refund. Depots will service both consumers and retailers. Fees paid by the Container Agency will be established by contract between the agency and the depot operators.

The Container Agency will establish consolidation centres to service different areas of the province. The centres will sort refillable containers and process recyclable materials for sale.

A transport network will be required to serve retailers, depots, consolidation centres and waste processors. The Container Agency will arrange the network using the most economical services available from depot operators, distributors and public carriers.

Reverse vending machines may be used by retailers and depot operators as a substitute for personal service. The machines automate the return and accounting for containers, and compact the material for transport. They are best suited to aluminum cans and plastic containers. Their universal applicability requires the bar coding of all beverage containers. Reverse vending machines are unsuitable for the return of refillable containers.

The inclusion of retail into the return network adds approximately 10% to costs. We have also analyzed the cost implications of a network with from 250-300 depots, excluding the return to retail option.

B. Financial elements

Our cost analyses are based on technical requirements for operating depots, consolidation centres and transport for the container types and volumes to be handled. The system is designed for sales volumes of approximately 1.4 billion containers per year. Not all of these will be recovered. We assume recovery rates by the fifth year of 95% for refillable glass, 75% for plastic and non-recyclable containers of less than one litre, and 90% for all others.

The Container Agency will receive revenue from several sources:

Unredeemed deposits
Deposit discounts
Distributor recovery fees
Waste revenue
Interest on float.

The Agency will also face several cost types:

Fee to retailers
Depot costs
Consolidation centre costs
Transport costs
Supplies
Agency costs
Startup costs, advertising and promotion, and research support.

The following table summarizes the suggested recovery fees to be charged to distributors.

	≤ one litre	> one litre
Refillable glass ≤ 500 ml	4¢	n.a.
Other refillable glass	6¢	n.a.
Non-refillable glass	4¢	5¢
Aluminum cans	1¢	n.a.
Plastic	3¢	5¢
Non-recyclables	2¢	3¢

Exhibit II-1 summarizes total five-year revenues and costs for four different scenarios.

Exhibit II-1
Summary of five-year revenues and costs (1992 $ million)

Container Types and Mix	Total Five Years Revenues	Costs A	Costs B
Refillable, recyclable and non-recyclable, present mix	$637	$398	$361
As above with 15% per year swing from less to more environmentally friendly containers	593	472	424
Refillable and recyclable, present mix	434	373	335
As above with 15% per year swing from less to more environmentally friendly containers	401	439	392

Costs A—Return to retail and to depot.

Costs B—Return to depot only.

A system that excludes return to retail costs from $37 million to $48 million less than the system which includes return to retail.

The viability of the system is affected by the exclusion of non-recyclable materials. In this case revenues fall significantly more quickly than costs.

The system is also affected by increasing the percentage of refillable containers which has the effect of reducing revenues and increasing costs.

The system is based on non-recyclable containers being included in the legislation in order to:

- Subsidize the costs of more environmentally friendly containers.

- Provide a level playing field for competing beverages in more environmentally friendly containers.
- Provide an incentive to consumers to use more environmentally friendly containers.

Although a switch to refillables reduces revenues and increase costs, we do not believe that in fact, a swing will occur to the extent that the viability of the system is jeopardized. Evidence suggests that many consumers will remain willing to pay for the added convenience of recyclable containers.

C. Other results

An expanded beverage container recovery system can be expected to provide additional employment to 422 persons, representing wages and salaries of $10 million per year. These numbers are a net increase on employment already existing in the beer and soft drink recovery networks.

The recovery system will handle a total of 75,000 tonnes of recyclable and non-recyclable materials presently passing through blue box or regular municipal waste streams. At a net saving of $100 per tonne, by the systems have adjusted to reduced volumes, (not an unrealistic figure), municipalities would save $7.5 million per year.

The establishment of a network of container depots controlled by a public agency, provides the basis for the development of a convenient province-wide system of enviro-centres, capable of accepting a larger variety of recyclable materials.

D. Implementation

In our analysis last year of a private sector container recovery system, we estimated an implementation period of some 14 months. The proposed system differs from a private sector system. Some differences would tend to reduce the implementation time while others would tend to increase it. We believe that a similar time of 15-18 months is reasonable to complete the design, development and implementation of the system.

Deposit/refund legislation cannot be extended to additional container types until some depots are open. Retailers would be unable to manage the increased volumes. When approximately 50% of depots have been established, legislation should be extended to those recyclable containers not presently covered. As the number of depots reaches the final number, non-recyclable containers should be included in the legislation. The time lag between these two points should be minimized to avoid extended periods of competitive advantage for beverages in non-recyclable containers.

III

An Overview Of The System

A. Container flow

Exhibit III-1 summarizes the anticipated flow of full and empty containers. The exact links and volumes of container movements will be established by the Agency in discussion with major producers, who may continue to play a part in the system. Consumers have the option of return to retail, or to depot. Retail returns are passed to depots or to consolidation centres (for large quantities). Refillables are returned to distributors from various points, while consolidation centres dispose of recyclable and non-recyclable materials.

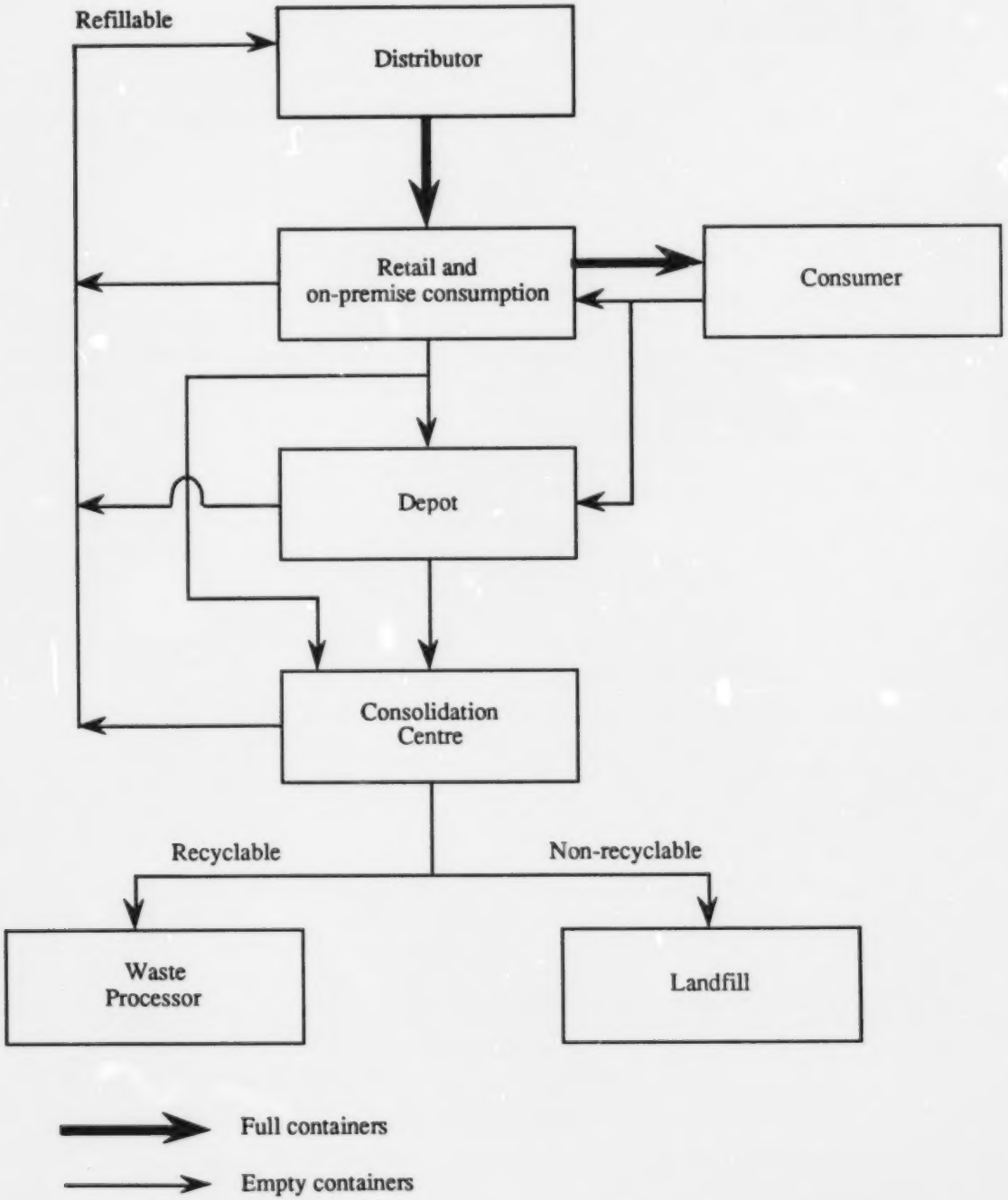
B. The Container Agency

The Container Agency will provide administrative and control services. Management will be responsible for maintaining the financial integrity of the recovery system. They will contract with the private sector and with non-profit service agencies to provide convenient depot services throughout the province. The Agency will also own and operate the consolidation centres where recyclable container materials will be consolidated and refillable containers may be sorted. The Agency would also market the recyclable material, promote the system to the public and contribute to research into innovative and acceptable uses for recyclable material.

The Container Agency will maintain cost records by container type so that recovery fees charged to distributors reflect the recovery costs of each container type.

The Agency will determine the exact structure of the system. The major producers such as brewers and soft drink bottlers maintain distribution and container recovery infrastructures that may economically have a part to play in the new system. For example, delivery vehicles may be used to transport empty containers from retailers to depots or to consolidation centres. The existing beer bottle sorting operation of Pacific Brewers Distributors may continue to operate on contract to the Container Agency. The conceptual structure of the recovery system has not been discussed with the major stakeholders. The part that they may play must be negotiated between the Agency and the stakeholders.

Exhibit III-1
Container flow



C. Distributors

Distributors must report sales and forward deposits and recovery fees, twice monthly, to the Container Agency. Annually, the Agency must provide audited sales figures that must be reconciled with the regular interim reports. The distributors must also provide figures twice monthly, and audited reports annually, for refillable containers that they may receive from retailers or depots. (The Container Agency may determine that certain refillable containers e.g., milk may be economically sorted at an early stage of the return system.)

The financial analysis assumes that the recovery fee charged to distributors is set at approximately 50% of the net cost of recovering each type of container. The balance of the costs will be covered by unredeemed deposits, and by the deposit discounts instituted to encourage a swing to more environmental friendly containers.

D. Retailers

Retailers will be required to accept up to 24 refillable and/or recyclable containers per day per person. In practice this means glass, plastic, aluminum and steel cans. Retailers will receive a fee for this service. The analysis assumes that the fee be set by the Container Agency at the level of two-thirds of the weighted average depot cost for each type of container. Retailers will not be required to accept non-recyclable materials such as aseptic packs and milk cartons.

Retailers may operate reverse vending machines should they determine that this recovery method is more advantageous than personal service.

Empty containers will be transported from retailers to depots or consolidation centres by a transportation system operated by the depots themselves, by distributors, or by the Container Agency. Crushed containers from reverse vending machines are likely to be transported directly to consolidation centres.

Because the system has not yet been established, it is difficult to estimate what percentage of total containers will be returned through retailers. Return to retail will probably be more convenient for small quantities. Return to depot will be more convenient for large quantities. Based on present experience with the beer container return system, influenced by the fact that depots in future will pay full refunds, we have assumed that 40% of returns will be to retailers.

E. Depots

The system includes a network of 100 to 150 depots throughout the province. Because consumers will retain the option of return to retail, depots need not be located in prime

retail space. In fact, for larger quantities, drive-in depots are more convenient for consumers than are locations in the middle of a shopping mall.

Depots will be required to accept unlimited quantities of refillable, recyclable and non-recyclable containers. Depots must pay the full legislated refund for each container type and will accept containers from the public and from retailers. The services to be provided and the fees to be paid will be negotiated between the depot operators and the Container Agency. Depots may carry out preliminary sorts by distributor, for refillable soft drink containers. These containers may then be collected by the distributor's own transport. On the other hand, beer containers (possibly requiring a more complicated sort) may be delivered to consolidation centres for sorting, or may be picked up by Pacific Brewers Distributors for sorting.

Depots may operate reverse vending machines should they determine that this form of service is more economical and acceptable to consumers. They may carry out some preliminary processing of materials (e.g., flattening aluminum cans) to reduce transportation costs to consolidation centres.

F. Consolidation centres

The province can conveniently be serviced by four consolidation centres, one each in the Lower Mainland, Vancouver Island, southwestern British Columbia, and northern British Columbia. These centres will be managed and staffed by government employees. Responsibilities include verifying the counts of containers returned and reported by depots and major retailers, sorting refillable containers that have not been sorted by depots and other subcontractors, and processing recyclable materials for sale. These centres will also consolidate non-recyclable material for landfill disposal (the cost of which will be included in the recovery fees charged to distributors).

G. Transport

Transport links and responsibilities will be determined by the Container Agency in discussion with the parties involved. Three major links are required:

- From retailer to depot or consolidation centre. This link can be provided by the retailer, the depot operator, or by a distributor under contract to the Container Agency.

- From depot to consolidation centre. Services may be provided by common carrier or by distributors' transport, contracted by the Container Agency.

- From depot or consolidation centre to distributor (for refillable containers). The Container Agency may contract with public carriers or with distributors to provide this transport.

- From consolidation centre to waste processors or landfills. The Container Agency will contract this service to public carriers.

H. The role of reverse vending machines

Reverse vending machines can reduce container recovery costs by automating the return and accounting for containers, and reducing the volume of material to be transported. The machines recognize acceptable containers from the bar code, although the machines from one manufacturer can also be programmed to recognize the shape of glass containers. The applicability of reverse vending machines depends on:

- The existence of bar codes.
- The extent of the segregation of container material that the Agency requires and that the machines are capable of.
- The likely volume of containers of each type to be returned to each potential site (which affects the economic viability of the machines).

Reverse vending machines may play play a useful role in the system. However, at present we are unable to project the likely saving with any confidence because we cannot forecast the return patterns (i.e., to retail or depot) with any confidence. Reverse vending machines will be unsuitable for the large scale return of recyclable beer, wine and spirit containers until they are marked with bar codes. In any event, they are unsuitable for the return of refillable containers.

I. Other options

The return system as described above will be expensive. Multi-million dollar savings can be effected by increasing the number of depots in the province and eliminating the return to retail option.

The inclusion of hundreds of retailers in the return network will significantly increase the administration of the system. Agency staff will be required to monitor relationships and service between retailers and depots. The sources of consumer complaints will also be significantly increased.

The return to retail option is not completely straightforward for consumers. Consumers are faced with a limit to the quantities they can return on any one day. Moreover, consumers must return non-recyclable containers to a depot. Under a return to depot only scenario the number of depots could be increased to 250 to 300, including many in shopping centres. Consumers will face a single return option for unlimited numbers of all containers.

IV

Financial Elements

A. Basic assumptions

The cost structure for the container recovery system is based on technical requirements for operating depots, consolidation centres and transport for the container types and volumes to be handled. Exhibit IV-1 summarizes sales by container type and anticipated recovery rates. By the fifth year we assume recovery rates for refillable glass to reach 95%, for plastic and non-recyclable containers below one litre to reach 75%, and for all other containers to reach 90%.

Exhibit IV-1
Expected container sales volumes and recovery rates

Container Type	Millions sold	Recovery Rate % Year 1 ≤ 1 litre	Year 1 > 1 litre	Year 5 ≤ 1 litre	Year 5 > 1 litre
Refillable glass	231	95	n.a.	95	n.a.
Non-refillable glass	226	65	75	90	90
Aluminum	587	80	n.a.	90	n.a.
Plastic	76	65	75	75	90
Non-recyclable	245	50	50	75	90
Total	1,365				

We have assumed for calculation purposes that all containers will be returned "over the counter" to retailers or to depots. To the extent that they are used, reverse vending machines will reduce costs. However, the extent of their use is limited by the present lack of bar codes on beer, wine and spirit containers. As well, the machines are unsuitable for refillable containers.

We have prepared calculations assuming that the present number and mix of containers sold remains unchanged for the forecast period of five years. We have prepared another set of calculations, assuming a swing of 15% per year from recyclables to refillables, and from non-recyclables to recyclables.

B. Revenue elements

The Container Agency will receive revenue from six sources:

- Unredeemed deposits for all containers excluding refillables. This figure is based on 15¢ for containers one litre and below, and 30¢ for containers exceeding one litre in size.

- Deposit discount on recyclables. The refund to consumers for recyclable containers will be two-thirds of the deposit, i.e., 10¢ for containers for containers one litre and below, and 20¢ for containers above one litre.

- Deposit discount on non-recyclables. The refund for non-recyclable containers will be one-third of the deposit, i.e., 5¢ for containers one litre and below and 10¢ for containers above one litre.

- Distributor recovery fee. The financial analysis assumes this to be set at 50% of the net cost per container recovered, levied on the gross number of containers sold. The actual fee will be established by the Container Agency based on budgeted costs for the system as finally determined and on the percentage of costs to be covered by distributors. The following are the assumed charges to distributors:

	≤ one litre	> one litre
Refillable glass ≤ 500 ml	4¢	n.a.
Other refillable glass	6¢	n.a.
Non-refillable glass	4¢	5¢
Aluminum cans	1¢	n.a.
Plastic	3¢	5¢
Non-recyclables	2¢	3¢

- Waste revenue. The great majority of revenue will be derived from aluminum. Glass has little or no value. Plastic revenues per ton, particularly for HDPE are significant. However, plastic container volumes are low in relation to glass and aluminum containers.

- Interest on float. Distributors pay deposits and recovery fees to the Container Agency in advance of the containers being recovered and the deposits being refunded. A float of eight weeks before deposits are refunded or used to cover system costs, enables the Agency to earn interest on substantial deposits.

C. Expense elements

The Container Agency will face 12 categories of costs:

- Retail fee. The assumed payment to retailers is equal to two-thirds of the weighted average cost for each container type, negotiated with independent depots.

- Transport from retail to depot. We have provided for the regular transport of small volumes of containers to depots from retailers. The figure may be reduced if significant numbers of containers returned to retailers are processed through reverse vending machines.

- Depot costs. Depot handling fees will be negotiated between the depot operators and the Container Agency. The fee per container is likely to be higher in the smaller depots than in the larger depots, in order to make it financially worth the operator's while. The fee will also depend on the level of service provided by the operator. He may include transport services from retail, and may carry out some sorts.

- Transport from depot to consolidation centre. The extent of the transport from the depot to consolidation centre will depend on the extent to which material is pre-processed at depots and on the number of refillable containers that bypass depots by being returned directly to distributors.

- Consolidation centre costs. Consolidation centres are assumed to be public sector operations.

- Supplies. The Container Agency will provide all parties in the recovery system with bags, boxes, cartons, etc., required to collect and transport containers.

- Transport of refillables to bottlers. We estimate a cost for transporting refillable bottles to bottlers from depots, consolidation centres or other contractors.

- Waste transport. The Container Agency will arrange the transport of recyclable materials to processors and non-recyclable materials to landfill.

- Agency costs. Agency costs include staff, occupancy, communications, and other costs required to manage and control the container recovery system.

- Startup costs. We estimate startup costs at $1 million in, or prior to, year 1.

- Advertising and promotion. We provided for a budget of $2.5 million in year 1, falling to $1.0 million in year 5.

- Research support. We provided for a contribution of $5 million per year for research into innovative and acceptable uses for recyclable materials.

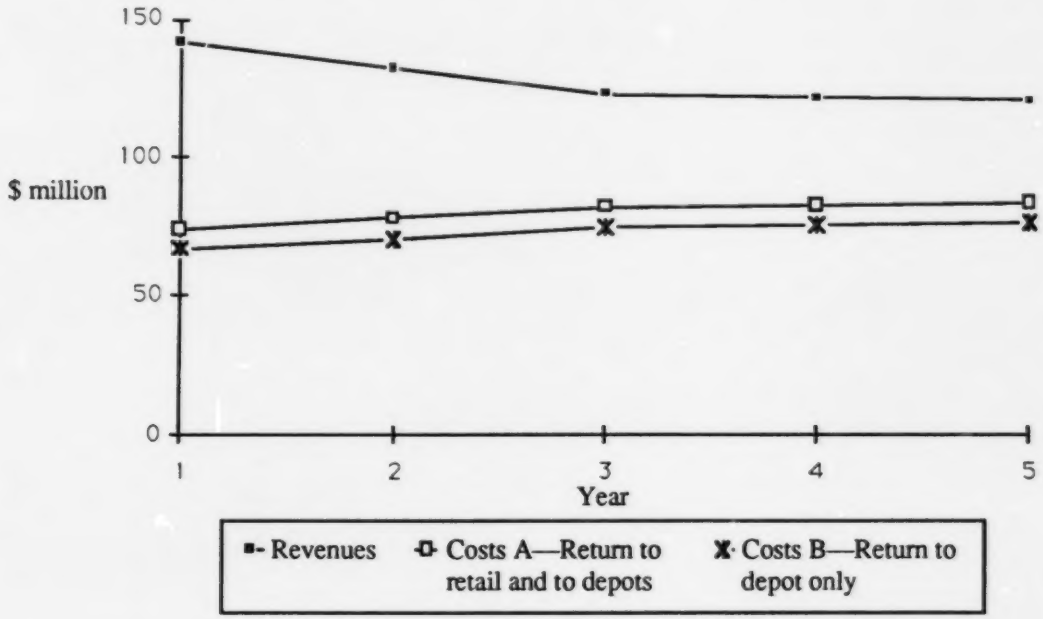
D. Financial results

We calculated the financial implications of the system applying to all containers (including non-recyclables), and to refillable and recyclable containers only. In each case we assumed no change in volumes and mix, as well as a swing to more environmentally friendly containers. The appendix contains five-year summaries of the revenue and cost elements for the scenarios studied. All figures are expressed in 1992 dollars.

1. All containers (including non-recyclables) with present mix

Exhibit IV-2 illustrates the revenues and costs for the next five years in a situation where the container mix does not change, but recovery rates improve. Revenues fall from a Year 1 level of $141 million to a Year 5 level of $120 million. The reduction occurs because more containers are recovered and fewer deposits are unredeemed. Costs for the proposed system increase from $73 million in Year 1 to $83 million in Year 5, as a result of the higher volume of containers passing through the system. Total five year revenues and costs are projected to be $636 million and $398 million respectively. By comparison, five year costs for the return to depot only option are $37 million less at $361 million.

Exhibit IV-2
All containers (including non-recyclables) with present mix



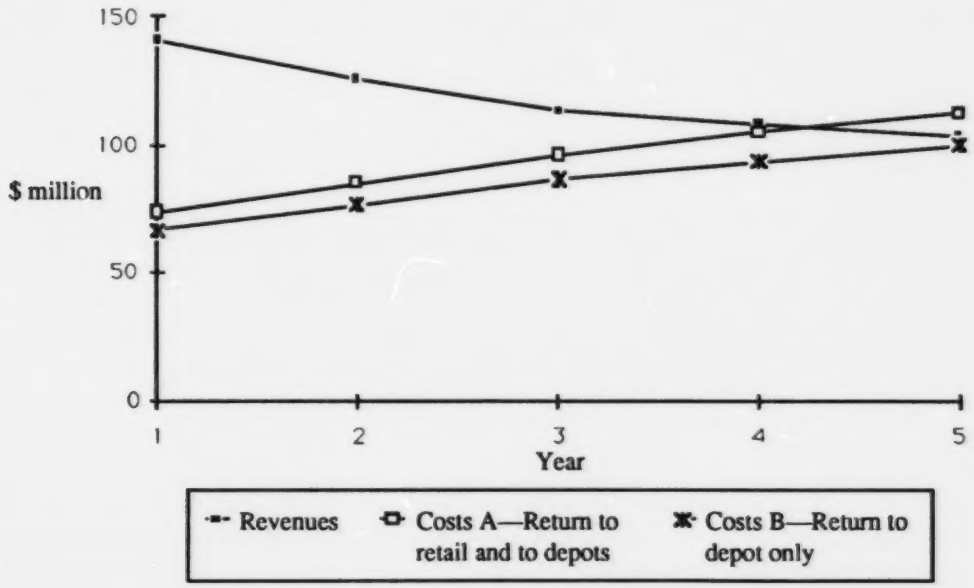
2. All containers (including non-recyclables) with a 15% per year swing from recyclable to refillable, and from non-recyclable to recyclable

This scenario reflects a progressive swing of 15% of containers per year from less to more environmentally friendly material. By the fifth year, 60% of the original recyclable containers are being converted to refillable (with adjustments for the fact that average glass containers are smaller than plastic containers). Simultaneously, by the fifth year 60% of non-recyclable containers have been converted to recyclable containers.

Exhibit IV-3 illustrates the revenue and cost implications. Revenues fall from $141 million in Year 1 to $104 million in Year 5. The fall-off in revenues is greater than in the previous case for three reasons:

- Unredeemed deposits on recyclable and non-recyclable containers fall as the number of containers falls. No unredeemed deposits are earned on refillable containers.
- The deposit discount on recyclable containers converted to refillable containers, is reduced.
- The deposit discount on non-recyclable containers, converted to recyclable containers, is also reduced.

Exhibit IV-3
All containers (including non-recyclables) with a 15% per year swing from recyclable to refillable, and from non-recyclable to recyclable



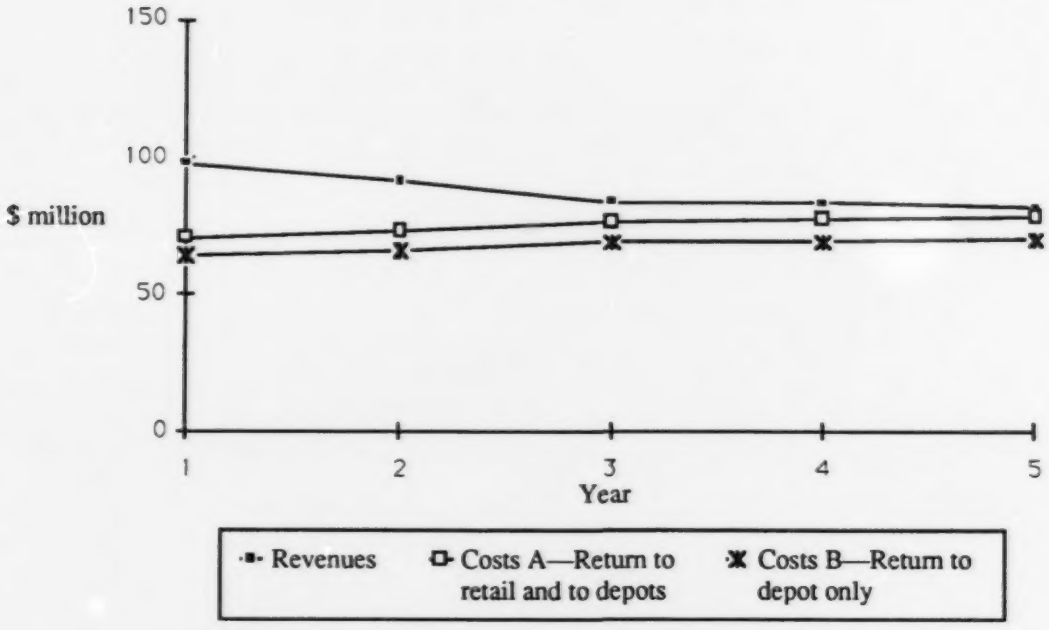
Costs for the proposed system increase from $73 million in Year 1 to $113 million in Year 5. The increase is steeper than in the first case because of the growing volume of refillable containers which are more expensive to recover than recyclable or non-recyclable containers.

Five year revenues are projected at $593 million, and costs at $472 million. Costs for the return to depot only option would be $48 million less at $424 million.

3. Refillable and recyclable containers only, with present mix

We calculated revenues and costs from a recovery system that excludes non-recyclable containers. The results are illustrated in Exhibit IV-4. Revenues start in Year 1 at $97 million, falling by Year 5 to $81 million. Again, the reduction occurs because of the reduction in unredeemed deposits, as recovery rates increase. Costs for the suggested system increase from $70 million in Year 1 to $77 million in Year 5, as a result of the increasing number of containers being recovered.

Exhibit IV-4
Refillable and recyclable containers only, with present mix



Five-year revenues and costs are projected at $434 million and $373 million respectively. By comparison, costs for the return to depot only option would be $38 million less, at $335 million.

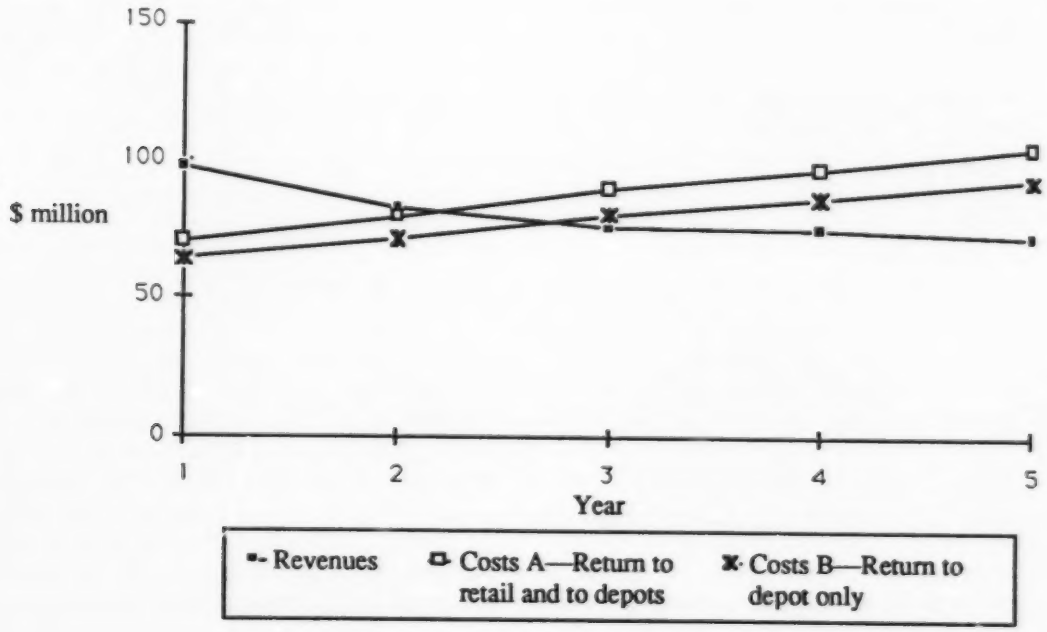
It is noteworthy that this situation is financially less favourable than the recovery of all containers. The major reason is that the distributor recovery fee and the high deposit discount for non-recyclables significantly exceed recovery costs for these container types.

This is an unsatisfactory scenario for distributors of beverages in refillable and recyclable containers. Revenues reflect no penalty, cost or other disincentive for the use of non-recyclable containers. In fact, without such a penalty the use of non-recyclable containers could increase at the expense of refillable and recyclable containers.

4. Refillable and recyclable containers only, with a 15% per year swing from recyclables to refillables

We calculated a scenario that excluded non-recyclable and assumed that by Year 5, the use of recyclable containers will have fallen by 60%, with a corresponding increase in refillable containers. Revenues are projected to fall from $97 million to $72 million as the unredeemed deposits and deposit discounts on recyclable containers are significantly reduced. At the same time costs for the proposed system increase from $70 million to $104 million as the system handles an increasing number of more expensive refillable containers.

Exhibit IV-5
Refillable and recyclable containers only, with a 15% per year swing from recyclables to refillables



Five-year revenues and costs are projected at $401 million and $439 million respectively. Costs for the return to depot only option would be $46 million less at $393 million.

Again, for users of refillable and recyclable containers, this is an unsatisfactory scenario, not only for the economic viability of the system. The revenues reflect no penalty for the use of non-recyclables. If non-recyclable containers are cheaper for the distributor than refillable or recyclable containers, products contained in non-recyclable containers will reflect a shelf-price advantage. The result is likely to be a swing from refillable and recyclable containers to non-recyclable containers.

E. Comments on revenue/cost implications

The preceding graphs illustrate clearly the sensitivity of revenues and costs to:

- The inclusion of non-recyclable containers in the system.
- A swing from non-recyclable to recyclable, and from recyclable to refillable containers.

The inclusion of non-recyclable containers in the system is environmentally desirable for three reasons. Firstly, without a deposit and recovery fee, or equivalent levy, beverages in non-recyclable containers would appear to have a competitive advantage. Secondly, the relatively low refund available for non-recyclable containers provides consumers with a strong incentive to buy beverages in more environmentally friendly containers. Thirdly, the discount between deposit and refund on non-recyclables subsidizes the cost of recovering the more preferable refillable and recyclable containers.

While a swing from non-recyclable containers will reduce landfill costs, any swing to refillable containers will increase recovery costs and reduce revenues. Extreme swings could require increases in the recovery fee charged to the distributors.

However, we do not believe that the viability of the system faces a serious threat from a changing container mix. While full refunds for refillable containers and lower refunds for recyclable and non-recyclable containers provides an incentive to consumers to switch, evidence suggests that the added convenience of the latter container type will ensure their strong survival. Experience in Ontario indicates that consumers strongly support recyclable containers for soft drinks. Consumers also like the convenience of canned beer. The unrestricted availability of imported canned beer will ensure that domestic producers will continue to offer this package.

Overall, we would expect to see some movement towards refillables. However, if deposit, refund and recovery fee rates are established as proposed, the system can be expected to remain financially viable.

F. Other results

An expanded beverage container recovery system will have results in the area of:

- Increased employment.
- Reduced landfill.
- Establishing a base for a potential chain of "enviro-centres."

1. Increased employment

The employment of persons in the beverage container recovery system will be influenced by the following:

- The addition of containers not presently recovered.
- A potential swing from piecemeal return to retail, to bulk return to depots.
- The extent of double handling of containers returned to retail and then passed to depots.
- The extent of use of reverse vending machines.

Based on a reasonable set of assumptions, however, we estimate that the new system will increase employment by approximately 422 person years, representing wages and salaries of $10 million per year.

2. Reduced municipal sanitation costs

A universal beverage container recovery system will significantly reduce the volume of non-refillable containers presently being recovered through the blue box systems or sent by consumers to landfill through the regular municipal waste stream. We estimate that the waste so diverted will exceed 75,000 tonnes per year. We do not know the present split between blue box and landfill systems, and so we cannot estimate specific savings. However, at a net saving of $100 per tonne, by the time the systems have adjusted to reduced volumes—not an unrealistic figure—municipalities would save $7.5 million per year.

3. Enviro-centres

The focus groups conducted by Canadian Facts illustrated clearly that consumers would welcome convenient centres to which they could return a variety of recyclable materials. A large proportion of provincial population is not served by blue box systems, and blue box systems do not take a large number of potentially recyclable materials.

Establishment of universal container return depots will facilitate the development of a convenient, province-wide system of enviro-centres.

V

Implementation

In our study of alternative container recovery systems carried last year for the beverage industry, we estimated a 14-month startup period. The present system under consideration differs somewhat from that studied last year. Some factors may speed up the process, while others may slow it down.

The potential contribution of the present brewery and soft drink recovery network is uncertain, and must be discussed with industry.

Government intends to establish new consolidation centres, thereby eliminating the possibility of making use of existing private sector facilities. On the other hand, the proposed system including return to retail requires fewer depots than assumed in our earlier study, providing for return to depot only. The smaller number of depots will simplify the negotiating and contracting processes. Offsetting this is the involvement of retailers and the need to develop satisfactory systems to handle payments to retailers, particularly the larger organizations.

The private sector could possibly advertise, interview and select contractors more quickly than government. On the other hand, however, it is now unnecessary for the private sector to establish an operating entity.

On balance we believe that the previously estimated 14 months should be extended to an implementation period of 15-18 months.

The critical elements in the implementation plan will be the ability of the Container Agency to bring depots into the system. The depots must be properly contracted and controlled. They must be available as new container types are phased in, because retailers (particularly food retailers) will be unable to deal with 100% of the new volumes. In addition, consumers will find the numerical limits on return to retail inconvenient.

If the new system is to include all container types, we would recommend the initial phasing in of recyclable containers not presently covered by deposit legislation as soon as 50% of the depots are up and running. As additional depots come on stream, the non-recyclable containers should be added. The time lag should be minimized to avoid giving an unfair advantage to beverages contained in non-recyclable containers.

Appendix

Five-year Revenue And Cost Summaries

BRITISH COLUMBIA CONTAINER AGENCY FINANCIAL PROJECTIONS

SUMMARY OF REVENUES AND COSTS --- ALL REFILLABLE, RECYCLABLE AND NON-RECYCLABLE CONTAINERS, BASE CASE.

RETURN TO DEPOT ONLY

	Year 1	Year 2	Year 3	Year 4	Year 5
REVENUES					
Unredeemed deposits (excl. refillable)	59,920	41,491	26,210	24,810	23,410
Deposit discount - recyclables	36,909	40,150	43,415	43,882	44,349
Deposit discount - non-recyclables	15,095	20,900	24,557	24,557	24,557
Distributor recovery fee	34,094	34,094	34,094	34,094	34,094
Waste revenue	(8,696)	(9,366)	(10,019)	(10,065)	(10,111)
Interest on float	4,032	4,032	4,032	4,032	4,032
Total	141,354	131,300	122,289	121,309	120,330
COSTS					
Retail Fee					
Transport retail to depot					
Depot costs	32,329	35,434	37,990	38,387	38,785
Transport depot to consol. centre	2,948	3,294	3,593	3,629	3,664
Consolidation centre	16,383	17,749	18,967	19,169	19,372
Supplies	1,855	2,112	2,344	2,393	2,442
Refillables to bottlers	670	605	605	605	605
Waste transport	1,824	2,064	2,291	2,372	2,453
Agency costs	1,804	1,978	2,126	2,143	2,159
Startup costs	1,000				
Advertising & promotion	2,500	2,000	1,500	1,000	1,000
Research support	5,000	5,000	5,000	5,000	5,000
Total	66,513	70,235	74,416	74,698	75,480
SURPLUS/SHORTFALL Annual	74,840	61,064	47,873	46,612	44,850
Cumulative	74,840	135,905	183,778	230,389	275,239

RETURN TO RETAIL AND TO DEPOT

	Year 1	Year 2	Year 3	Year 4	Year 5
REVENUES					
Unredeemed deposits (excl. refillable)	59,920	41,491	26,210	24,810	23,410
Deposit discount - recyclables	36,909	40,150	43,415	43,882	44,349
Deposit discount - non-recyclables	15,095	20,900	24,557	24,557	24,557
Distributor recovery fees	34,094	34,094	34,094	34,094	34,094
Waste revenue	(8,696)	(9,366)	(10,019)	(10,065)	(10,111)
Interest on float	4,032	4,032	4,032	4,032	4,032
Total	141,354	131,300	122,289	121,309	120,330
COSTS					
Retail Fee	7,882	8,359	8,851	8,958	9,064
Transport retail to depot	2,110	2,286	2,462	2,490	2,519
Depot costs	31,116	33,878	36,310	36,693	37,077
Transport depot to consol. centre	4,469	4,994	5,448	5,501	5,555
Consolidation centre	13,259	14,259	15,160	15,325	15,489
Supplies	1,855	2,112	2,344	2,393	2,442
Refillables to bottlers	637	575	575	575	575
Waste transport	1,628	1,848	2,054	2,125	2,196
Agency costs	1,804	1,978	2,126	2,143	2,159
Startup costs	1,000				
Advertising & promotion	2,500	2,000	1,500	1,000	1,000
Research support	5,000	5,000	5,000	5,000	5,000
Total	73,260	77,287	81,829	82,203	83,076
	68,093	54,013	40,460	39,107	37,253
	68,093	122,106	162,566	201,673	238,927

CALCULATION OF INTEREST ON FLOAT

	mill		$000
Deposits :			
1 litre and below	1,210.8	$0.15	181,620
Above 1 litre	154.5	$0.30	46,350
Recovery fee			34,094
			262,064
Eight week float			40,318
Interest @ 10%			4,032

BRITISH COLUMBIA CONTAINER AGENCY FINANCIAL PROJECTIONS

SUMMARY OF REVENUES AND COSTS --- ALL REFILLABLE, RECYCLABLE AND NON-RECYCLABLE CONTAINERS, WITH A 15% SWING FROM RECYCLABLE TO REFILLABLE AND FROM NON-RECYCLABLE TO RECYCLABLE, AND A REDUCTION FROM 95% TO 90% RECOVERY OF REFILLABLES.

RETURN TO DEPOT ONLY

REVENUES	Year 1	Year 2	Year 3	Year 4	Year 5
Unredeemed deposits (excl. refillable)	54,328	37,355	23,542	22,352	21,162
Deposit discount - recyclables	32,505	35,696	38,746	39,143	39,539
Deposit discount - non-recyclables	12,831	17,765	20,873	20,873	20,873
Distributor recovery fee	39,458	39,458	39,458	39,458	39,458
Waste revenue	(7,623)	(8,280)	(8,889)	(8,928)	(8,967)
Interest on float	4,114	4,114	4,114	4,114	4,114
Total	135,613	126,108	117,844	117,012	116,179
COSTS					
Retail Fee	35,370	37,985	40,340	40,843	41,180
Transport retail to depot	3,454	3,787	4,080	4,137	4,167
Depot costs	20,026	21,254	22,411	22,742	22,910
Transport depot to consol. centre	1,666	1,914	2,130	2,172	2,213
Consolidation centre	1,076	770	770	770	770
Supplies	1,764	1,995	2,216	2,298	2,379
Refillables to bottlers	1,839	1,994	2,129	2,149	2,163
Waste transport	1,000				
Agency costs	2,500	2,000	1,500	1,000	1,000
Startup costs	5,000	5,000	5,000	5,000	5,000
Advertising & promotion					
Research support					
Total	73,696	76,699	80,577	81,109	81,781
SURPLUS/SHORTFALL Annual	61,918	49,409	37,268	35,902	34,398
Cumulative	61,918	111,327	148,594	184,497	218,895

RETURN TO RETAIL AND TO DEPOT

REVENUES	Year 1	Year 2	Year 3	Year 4	Year 5
Unredeemed deposits (excl. refillable)	54,328	37,355	23,542	22,352	21,162
Deposit discount - recyclables	32,505	35,696	38,746	39,143	39,539
Deposit discount - non-recyclables	12,831	17,765	20,873	20,873	20,873
Distributor recovery fees	39,458	39,458	39,458	39,458	39,458
Waste revenue	(7,623)	(8,280)	(8,889)	(8,928)	(8,967)
Interest on float	4,114	4,114	4,114	4,114	4,114
Total	135,613	126,108	117,844	117,012	116,179
COSTS					
Retail Fee	8,770	9,215	9,683	9,818	9,908
Transport retail to depot	2,553	2,732	2,913	2,959	2,983
Depot costs	33,892	36,378	38,620	39,103	39,429
Transport depot to consol. centre	5,237	5,741	6,186	6,272	6,318
Consolidation centre	16,483	17,369	18,226	18,499	18,636
Supplies	1,666	1,914	2,130	2,172	2,213
Refillables to bottlers	1,023	732	732	732	732
Waste transport	1,571	1,783	1,982	2,053	2,125
Agency costs	1,839	1,994	2,129	2,149	2,163
Startup costs	1,000				
Advertising & promotion	2,500	2,000	1,500	1,000	1,000
Research support	5,000	5,000	5,000	5,000	5,000
Total	81,534	84,859	89,101	89,757	90,506
	54,080	41,249	28,743	27,255	25,673
	54,080	95,329	124,072	151,327	177,000

CALCULATION OF INTEREST ON FLOAT

	mill		$000
Deposits :			
1 litre and below	1,237.8	$0.15	185,675
Above 1 litre	141.0	$0.30	42,296
Recovery fee			39,458
			267,428
Eight week float			41,143
Interest @ 10%			4,114

IV-3

BRITISH COLUMBIA CONTAINER AGENCY FINANCIAL PROJECTIONS

SUMMARY OF REVENUES AND COSTS --- ALL REFILLABLE, RECYCLABLE AND NON-RECYCLABLE CONTAINERS, WITH A 30% SWING FROM RECYCLABLE TO REFILLABLE AND FROM NON-RECYCLABLE TO RECYCLABLE, AND A REDUCTION FROM 95% TO 90% RECOVERY OF REFILLABLES.

RETURN TO DEPOT ONLY

REVENUES	Year 1	Year 2	Year 3	Year 4	Year 5
Unredeemed deposits (excl. refillable)	48,737	33,219	20,874	19,894	18,914
Deposit discount - recyclables	28,101	31,242	34,077	34,403	34,730
Deposit discount - non-recyclables	10,567	14,630	17,190	17,190	17,190
Distributor recovery fee	44,822	44,822	44,822	44,822	44,822
Waste revenue	(6,550)	(7,193)	(7,760)	(7,792)	(7,824)
Interest on float	4,197	4,197	4,197	4,197	4,197
Total	129,873	120,916	113,399	112,714	112,028
COSTS					
Retail fee	37,964	40,329	42,503	43,070	43,346
Transport retail to depot	3,961	4,289	4,583	4,655	4,680
Depot costs	23,656	24,817	25,957	26,376	26,512
Transport depot to consol. centre	1,476	1,716	1,916	1,950	1,984
Consolidation centre	1,482	935	935	935	935
Supplies	1,704	1,927	2,142	2,223	2,304
Refillables to bottlers	1,873	2,013	2,134	2,157	2,168
Waste transport	1,000				
Agency costs	2,500	2,000	1,500	1,000	1,000
Startup costs	5,000	5,000	5,000	5,000	5,000
Advertising & promotion					
Research support					
Total	80,616	83,025	86,670	87,366	87,929
SURPLUS/SHORTFALL Annual	49,257	37,891	26,729	25,348	24,099
Cumulative	49,257	87,148	113,877	139,224	163,323

RETURN TO RETAIL AND TO DEPOT

REVENUES	Year 1	Year 2	Year 3	Year 4	Year 5
Unredeemed deposits (excl. refillable)	48,737	33,219	20,874	19,894	18,914
Deposit discount - recyclables	28,101	31,242	34,077	34,403	34,730
Deposit discount - non-recyclables	10,567	14,630	17,190	17,190	17,190
Distributor recovery fees	44,822	44,822	44,822	44,822	44,822
Waste revenue	(6,550)	(7,193)	(7,760)	(7,792)	(7,824)
Interest on float	4,197	4,197	4,197	4,197	4,197
Total	129,873	120,916	113,399	112,714	112,028
COSTS					
Retail fee	9,595	10,021	10,470	10,622	10,696
Transport retail to depot	2,995	3,187	3,377	3,435	3,455
Depot costs	36,417	38,663	40,732	41,277	41,544
Transport depot to consol. centre	6,005	6,503	6,948	7,058	7,095
Consolidation centre	19,698	20,531	21,379	21,725	21,836
Supplies	1,476	1,716	1,916	1,950	1,984
Refillables to bottlers	1,408	889	889	889	889
Waste transport	1,515	1,717	1,911	1,982	2,053
Agency costs	1,873	2,013	2,134	2,157	2,168
Startup costs	1,000				
Advertising & promotion	2,500	2,000	1,500	1,000	1,000
Research support	5,000	5,000	5,000	5,000	5,000
Total	89,483	92,239	96,255	97,094	97,720
	40,390	28,678	17,144	15,619	14,308
	40,390	69,068	86,212	101,831	116,140

CALCULATION OF INTEREST ON FLOAT

	mill		$000
Deposits :			
1 litre and below	1,264.9	$0.15	189,729
Above 1 litre	127.5	$0.30	38,241
Recovery fee			44,822
			272,792
Eight week float			41,968
Interest @ 10%			4,197

BRITISH COLUMBIA CONTAINER AGENCY FINANCIAL PROJECTIONS

SUMMARY OF REVENUES AND COSTS --- ALL REFILLABLE, RECYCLABLE AND NON-RECYCLABLE CONTAINERS, WITH A 45% SWING FROM RECYCLABLE TO REFILLABLE AND FROM NON-RECYCLABLE TO RECYCLABLE, AND A REDUCTION FROM 95% TO 90% RECOVERY OF REFILLABLES.

IV-3

RETURN TO DEPOT ONLY

REVENUES	Year 1	Year 2	Year 3	Year 4	Year 5
Unredeemed deposits (excl. refillable)	43,145	29,083	18,206	17,436	16,666
Deposit discount - recyclables	23,696	26,788	29,408	29,664	29,921
Deposit discount - non-recyclables	8,302	11,495	13,506	13,506	13,506
Distributor recovery fee	50,186	50,186	50,186	50,186	50,186
Waste revenue	(5,477)	(6,107)	(6,631)	(6,656)	(6,681)
Interest on float	4,279	4,279	4,279	4,279	4,279
Total	124,133	115,724	108,955	108,416	107,877
COSTS					
Retail Fee					
Transport retail to depot					
Depot costs	40,771	42,908	44,919	45,554	45,771
Transport depot to consol. centre	4,467	4,792	5,085	5,173	5,192
Consolidation centre	27,274	28,376	29,506	30,011	30,116
Supplies	1,287	1,518	1,702	1,729	1,755
Refillables to bottlers	1,808	1,100	1,100	1,100	1,100
Waste transport	1,644	1,858	2,067	2,148	2,229
Agency costs	1,907	2,031	2,140	2,165	2,174
Startup costs	1,000				
Advertising & promotion	2,500	2,000	1,500	1,000	1,000
Research support	5,000	5,000	5,000	5,000	5,000
Total	87,738	89,583	93,020	93,880	94,337
SURPLUS/SHORTFALL Annual	36,395	26,142	15,935	14,536	13,540
Cumulative	36,395	62,537	78,471	93,008	106,547

RETURN TO RETAIL AND TO DEPOT

REVENUES	Year 1	Year 2	Year 3	Year 4	Year 5
Unredeemed deposits (excl. refillable)	43,145	29,083	18,206	17,436	16,666
Deposit discount - recyclables	23,696	26,788	29,408	29,664	29,921
Deposit discount - non-recyclables	8,302	11,495	13,506	13,506	13,506
Distributor recovery fees	50,186	50,186	50,186	50,186	50,186
Waste revenue	(5,477)	(6,107)	(6,631)	(6,656)	(6,681)
Interest on float	4,279	4,279	4,279	4,279	4,279
Total	124,133	115,724	108,955	108,416	107,877
COSTS					
Retail Fee	10,472	10,882	11,316	11,486	11,544
Transport retail to depot	3,437	3,641	3,841	3,911	3,927
Depot costs	39,160	41,188	43,102	43,713	43,922
Transport depot to consol. centre	6,773	7,265	7,709	7,843	7,872
Consolidation centre	22,905	23,689	24,533	24,952	25,038
Supplies	1,287	1,518	1,702	1,729	1,755
Refillables to bottlers	1,794	1,046	1,046	1,046	1,046
Waste transport	1,459	1,652	1,839	1,911	1,982
Agency costs	1,907	2,031	2,140	2,165	2,174
Startup costs	1,000				
Advertising & promotion	2,500	2,000	1,500	1,000	1,000
Research support	5,000	5,000	5,000	5,000	5,000
Total	97,693	99,911	103,729	104,755	105,260
	26,439	15,813	5,226	3,661	2,617
	26,439	42,252	47,478	51,139	53,757

CALCULATION OF INTEREST ON FLOAT

	mill		$000
Deposits :			
1 litre and below	1,291.9	60.15	193,784
Above 1 litre	114.0	60.30	34,187
Recovery fee			50,186
			278,156
Eight week float			42,793
Interest @ 10%			4,279

BRITISH COLUMBIA CONTAINER AGENCY FINANCIAL PROJECTIONS

SUMMARY OF REVENUES AND COSTS --- ALL REFILLABLE, RECYCLABLE AND NON-RECYCLABLE CONTAINERS, WITH A 60% SWING FROM RECYCLABLE TO REFILLABLE AND FROM NON-RECYCLABLE TO RECYCLABLE, AND A REDUCTION FROM 95% TO 90% RECOVERY OF REFILLABLES.

RETURN TO DEPOT ONLY

REVENUES	Year 1	Year 2	Year 3	Year 4	Year 5
Unredeemed deposits (excl. refillable)	37,553	24,947	15,538	14,978	14,418
Deposit discount - recyclables	19,292	22,333	24,738	24,925	25,112
Deposit discount - non-recyclables	6,038	8,360	9,823	9,823	9,823
Distributor recovery fee	55,551	55,551	55,551	55,551	55,551
Waste revenue	(4,404)	(5,020)	(5,501)	(5,520)	(5,538)
Interest on float	4,362	4,362	4,362	4,362	4,362
Total	118,392	110,533	104,510	104,118	103,726

COSTS					
Retail Fee					
Transport retail to depot					
Depot costs	43,407	45,306	47,146	47,845	48,002
Transport depot to consol. centre	4,974	5,294	5,587	5,691	5,705
Consolidation centre	30,884	31,932	33,056	33,646	33,721
Supplies	1,097	1,319	1,488	1,507	1,526
Refillables to bottlers	2,293	1,265	1,265	1,265	1,265
Waste transport	1,584	1,790	1,992	2,074	2,155
Agency costs	1,939	2,048	2,146	2,172	2,179
Startup costs	1,000				
Advertising & promotion	2,500	2,000	1,500	1,000	1,000
Research support	5,000	5,000	5,000	5,000	5,000
Total	94,679	95,956	99,181	100,200	100,353

SURPLUS/SHORTFALL						
	Annual	23,713	14,577	5,329	3,919	3,174
	Cumulative	23,713	38,290	43,620	47,538	50,712

RETURN TO RETAIL AND TO DEPOT

REVENUES	Year 1	Year 2	Year 3	Year 4	Year 5
Unredeemed deposits (excl. refillable)	37,553	24,947	15,538	14,978	14,418
Deposit discount - recyclables	19,292	22,333	24,738	24,925	25,112
Deposit discount - non-recyclables	6,038	8,360	9,823	9,823	9,823
Distributor recovery fees	55,551	55,551	55,551	55,551	55,551
Waste revenue	(4,404)	(5,020)	(5,501)	(5,520)	(5,538)
Interest on float	4,362	4,362	4,362	4,362	4,362
Total	118,392	110,533	104,510	104,118	103,726

COSTS					
Retail Fee	11,304	11,695	12,113	12,300	12,342
Transport retail to depot	3,880	4,096	4,305	4,388	4,399
Depot costs	41,724	43,523	45,273	45,945	46,097
Transport depot to consol. centre	7,541	8,027	8,471	8,628	8,650
Consolidation centre	26,105	26,846	27,689	28,179	28,241
Supplies	1,097	1,319	1,488	1,507	1,526
Refillables to bottlers	2,180	1,203	1,203	1,203	1,203
Waste transport	1,402	1,587	1,768	1,839	1,911
Agency costs	1,939	2,048	2,146	2,172	2,179
Startup costs	1,000				
Advertising & promotion	2,500	2,000	1,500	1,000	1,000
Research support	5,000	5,000	5,000	5,000	5,000
Total	105,673	107,344	110,954	112,161	112,546

	12,719	3,188	(6,444)	(8,043)	(8,820)
	12,719	15,907	9,463	1,420	(7,399)

CALCULATION OF INTEREST ON FLOAT

	mill		$000
Deposits :			
1 litre and below	1,318.9	$0.15	197,838
Above 1 litre	100.4	$0.30	30,132
Recovery fee			55,551
			283,521
Eight week float			43,619
Interest @ 10%			4,362

BRITISH COLUMBIA CONTAINER AGENCY FINANCIAL PROJECTIONS

SUMMARY OF REVENUES AND COSTS --- ALL REFILLABLE AND RECYCLABLE CONTAINERS, BASE CASE.

RETURN TO DEPOT ONLY

	Year 1	Year 2	Year 3	Year 4	Year 5
REVENUES					
Unredeemed deposits (excl. refillable)	37,277	27,555	17,760	16,360	14,960
Deposit discount - recyclables	36,909	40,150	43,415	43,882	44,349
Deposit discount - non-recyclables					
Distributor recovery fee	28,700	28,700	28,700	28,700	28,700
Waste revenue	(8,696)	(9,366)	(10,019)	(10,065)	(10,111)
Interest on float	3,252	3,252	3,252	3,252	3,252
Total	97,442	90,291	83,108	82,129	81,150
COSTS					
Retail Fee					
Transport retail to depot					
Depot costs	30,412	32,256	34,158	34,566	34,974
Transport depot to consol. centre	2,638	2,857	3,077	3,113	3,148
Consolidation centre	15,818	16,781	17,764	17,973	18,183
Supplies	1,656	1,832	2,014	2,062	2,111
Refillables to bottlers	670	605	605	605	605
Waste transport	1,633	1,795	1,974	2,055	2,136
Agency costs	1,928	2,048	2,170	2,190	2,210
Startup costs	1,000				
Advertising & promotion	2,500	2,000	1,500	1,000	1,000
Research support	5,000	5,000	5,000	5,000	5,000
Total	63,255	65,173	68,260	68,564	69,367
SURPLUS/SHORTFALL Annual	34,187	25,118	14,848	13,565	11,783
Cumulative	34,187	59,305	74,153	87,718	99,501

RETURN TO RETAIL AND TO DEPOT

	Year 1	Year 2	Year 3	Year 4	Year 5
REVENUES					
Unredeemed deposits (excl. refillable)	37,277	27,555	17,760	16,360	14,960
Deposit discount - recyclables	36,909	40,150	43,415	43,882	44,349
Deposit discount - non-recyclables					
Distributor recovery fees	28,700	28,700	28,700	28,700	28,700
Waste revenue	(8,696)	(9,366)	(10,019)	(10,065)	(10,111)
Interest on float	3,252	3,252	3,252	3,252	3,252
Total	97,442	90,291	83,108	82,129	81,150
COSTS					
Retail Fee	8,150	8,645	9,154	9,264	9,373
Transport retail to depot	2,110	2,286	2,462	2,490	2,519
Depot costs	28,951	30,697	32,499	32,891	33,283
Transport depot to consol. centre	3,999	4,331	4,665	4,719	4,773
Consolidation centre	12,893	13,613	14,353	14,523	14,693
Supplies	1,656	1,832	2,014	2,062	2,111
Refillables to bottlers	637	575	575	575	575
Waste transport	1,436	1,579	1,737	1,808	1,879
Agency costs	1,928	2,048	2,170	2,190	2,210
Startup costs	1,000				
Advertising & promotion	2,500	2,000	1,500	1,000	1,000
Research support	5,000	5,000	5,000	5,000	5,000
Total	70,262	72,605	76,127	76,521	77,415
	27,180	17,686	6,981	5,608	3,734
	27,180	44,866	51,847	57,455	61,189

CALCULATION OF INTEREST ON FLOAT

	mill		$000
Deposits :			
1 litre and below	1,037.7	$0.15	155,655
Above 1 litre	90.1	$0.30	27,030
Recovery fee			28,700
			211,385
Eight week float			32,521
Interest @ 10%			3,252

IV-5

BRITISH COLUMBIA CONTAINER AGENCY FINANCIAL PROJECTIONS

SUMMARY OF REVENUES AND COSTS --- ALL REFILLABLE AND RECYCLABLE CONTAINERS, WITH A 15% SWING FROM RECYCLABLE TO REFILLABLE, AND A REDUCTION FROM 95% TO 90% RECOVERY OF REFILLABLES

RETURN TO DEPOT ONLY

REVENUES	Year 1	Year 2	Year 3	Year 4	Year 5
Unredeemed deposits (excl. refillable)	31,686	23,422	15,096	13,906	12,716
Deposit discount - recyclables	31,373	34,127	36,903	37,299	37,696
Deposit discount - non-recyclables					
Distributor recovery fee	33,611	33,611	33,611	33,611	33,611
Waste revenue	(7,392)	(7,961)	(8,516)	(8,555)	(8,594)
Interest on float	3,328	3,328	3,328	3,328	3,328
Total	92,606	86,527	80,422	79,589	78,757
COSTS					
Retail Fee					
Transport retail to depot					
Depot costs	33,194	34,705	36,378	36,893	37,240
Transport depot to consol. centre	3,070	3,248	3,445	3,502	3,532
Consolidation centre	19,319	20,058	20,927	21,268	21,442
Supplies	1,419	1,568	1,723	1,764	1,806
Refillables to bottlers	1,076	770	770	770	770
Waste transport	1,582	1,740	1,916	1,997	2,078
Agency costs	1,969	2,067	2,172	2,196	2,213
Startup costs	1,000				
Advertising & promotion	2,500	2,000	1,500	1,000	1,000
Research support	5,000	5,000	5,000	5,000	5,000
Total	70,129	71,157	73,831	74,392	75,081
SURPLUS/SHORTFALL Annual	22,477	15,370	6,591	5,198	3,676
Cumulative	22,477	37,847	44,438	49,636	53,311

RETURN TO RETAIL AND TO DEPOT

REVENUES	Year 1	Year 2	Year 3	Year 4	Year 5
Unredeemed deposits (excl. refillable)	31,686	23,422	15,096	13,906	12,716
Deposit discount - recyclables	31,373	34,127	36,903	37,299	37,696
Deposit discount - non-recyclables					
Distributor recovery fees	33,611	33,611	33,611	33,611	33,611
Waste revenue	(7,392)	(7,961)	(8,516)	(8,555)	(8,594)
Interest on float	3,328	3,328	3,328	3,328	3,328
Total	92,606	86,527	80,422	79,589	78,757
COSTS					
Retail Fee	8,896	9,301	9,749	9,887	9,980
Transport retail to depot	2,456	2,599	2,756	2,802	2,826
Depot costs	31,668	33,101	34,688	35,182	35,514
Transport depot to consol. centre	4,655	4,925	5,223	5,309	5,353
Consolidation centre	16,024	16,572	17,230	17,511	17,652
Supplies	1,419	1,568	1,723	1,764	1,806
Refillables to bottlers	1,023	732	732	732	732
Waste transport	1,392	1,531	1,685	1,757	1,828
Agency costs	1,969	2,067	2,172	2,196	2,213
Startup costs	1,000				
Advertising & promotion	2,500	2,000	1,500	1,000	1,000
Research support	5,000	5,000	5,000	5,000	5,000
Total	78,002	79,395	82,459	83,140	83,907
	14,604	7,132	(2,037)	(3,551)	(5,150)
	14,604	21,736	19,699	16,148	10,998

CALCULATION OF INTEREST ON FLOAT

	mill		$000
Deposits :			
1 litre and below	1,064.7	$0.15	159,710
Above 1 litre	76.6	$0.30	22,976
Recovery fee			33,611
			216,296
Eight week float			33,276
Interest @ 10%			3,328

07-Apr-92

BRITISH COLUMBIA CONTAINER AGENCY FINANCIAL PROJECTIONS

IV-5

SUMMARY OF REVENUES AND COSTS --- ALL REFILLABLE AND RECYCLABLE CONTAINERS, WITH A 35% SWING FROM RECYCLABLE TO REFILLABLE, AND A REDUCTION FROM 95% TO 90% RECOVERY OF REFILLABLES

RETURN TO DEPOT ONLY

	Year 1	Year 2	Year 3	Year 4	Year 5
REVENUES					
Unredeemed deposits (excl. refillable)	26,094	19,289	12,432	11,452	10,472
Deposit discount - recyclables	25,836	28,105	30,391	30,717	31,044
Deposit discount - non-recyclables					
Distributor recovery fee	38,523	38,523	38,523	38,523	38,523
Waste revenue	(6,087)	(6,556)	(7,013)	(7,045)	(7,077)
Interest on float	3,403	3,403	3,403	3,403	3,403
Total	87,769	82,763	77,735	77,050	76,364
COSTS					
Retail Fee					
Transport retail to depot					
Depot costs	35,971	37,213	38,695	39,281	39,566
Transport depot to consol. centre	3,562	3,649	3,828	3,901	3,926
Consolidation centre	22,801	23,393	24,193	24,626	24,766
Supplies	1,182	1,305	1,433	1,467	1,501
Refillables to bottlers	1,482	935	935	935	935
Waste transport	1,532	1,686	1,858	1,939	2,020
Agency costs	2,008	2,088	2,178	2,205	2,219
Startup costs	1,000				
Advertising & promotion	2,500	2,000	1,500	1,000	1,000
Research support	5,000	5,000	5,000	5,000	5,000
Total	76,979	77,269	79,621	80,354	80,932
SURPLUS/SHORTFALL Annual	10,790	5,494	(1,886)	(3,304)	(4,568)
Cumulative	10,790	16,284	14,398	11,094	6,526

RETURN TO RETAIL AND TO DEPOT

	Year 1	Year 2	Year 3	Year 4	Year 5
REVENUES					
Unredeemed deposits (excl. refillable)	26,094	19,289	12,432	11,452	10,472
Deposit discount - recyclables	25,836	28,105	30,391	30,717	31,044
Deposit discount - non-recyclables					
Distributor recovery fees	38,523	38,523	38,523	38,523	38,523
Waste revenue	(6,087)	(6,356)	(7,013)	(7,045)	(7,077)
Interest on float	3,403	3,403	3,403	3,403	3,403
Total	87,769	82,763	77,735	77,050	76,364
COSTS					
Retail Fee	9,640	9,973	10,370	10,527	10,604
Transport retail to depot	2,802	2,919	3,063	3,121	3,141
Depot costs	34,383	35,561	36,969	37,530	37,804
Transport depot to consol. centre	5,310	5,533	5,804	5,914	5,952
Consolidation centre	19,143	19,581	20,195	20,552	20,666
Supplies	1,182	1,305	1,433	1,467	1,501
Refillables to bottlers	1,408	889	889	889	889
Waste transport	1,347	1,483	1,634	1,706	1,777
Agency costs	2,008	2,088	2,178	2,205	2,219
Startup costs	1,000				
Advertising & promotion	2,500	2,000	1,500	1,000	1,000
Research support	5,000	5,000	5,000	5,000	5,000
Total	85,724	86,332	89,035	89,910	90,551
	2,045	(3,569)	(11,300)	(12,860)	(14,187)
	2,045	(1,524)	(12,824)	(25,684)	(39,871)

CALCULATION OF INTEREST ON FLOAT

	mill		$000
Deposits :			
1 litre and below	1,091.8	$0.15	163,764
Above 1 litre	63.1	$0.30	18,921
Recovery fee			38,523
			221,208
Eight week float			34,032
Interest @ 10%			3,403

BRITISH COLUMBIA CONTAINER AGENCY FINANCIAL PROJECTIONS

SUMMARY OF REVENUES AND COSTS --- ALL REFILLABLE AND RECYCLABLE CONTAINERS, WITH A 45% SWING FROM RECYCLABLE TO REFILLABLE, AND A REDUCTION FROM 95% TO 90% RECOVERY OF REFILLABLES

RETURN TO DEPOT ONLY

	Year 1	Year 2	Year 3	Year 4	Year 5
REVENUES					
Unredeemed deposits (excl. refillable)	20,502	15,155	9,768	8,998	8,228
Deposit discount - recyclables	20,300	22,082	23,878	24,135	24,392
Deposit discount - non-recyclables					
Distributor recovery fee	43,434	43,434	43,434	43,434	43,434
Waste revenue	(4,783)	(5,152)	(5,510)	(5,536)	(5,561)
Interest on float	3,479	3,479	3,479	3,479	3,479
Total	82,932	78,999	75,049	74,510	73,971
COSTS					
Retail fee					
Transport retail to depot					
Depot costs	38,522	39,489	40,773	41,423	41,646
Transport depot to consol. centre	3,935	4,050	4,212	4,300	4,319
Consolidation centre	26,267	26,721	27,461	27,982	28,090
Supplies	945	1,042	1,142	1,169	1,196
Refillables to bottlers	1,888	1,100	1,100	1,100	1,100
Waste transport	1,481	1,631	1,800	1,881	1,962
Agency costs	2,047	2,109	2,185	2,214	2,225
Startup costs	1,000				
Advertising & promotion	2,500	2,000	1,500	1,000	1,000
Research support	5,000	5,000	5,000	5,000	5,000
Total	83,585	83,143	85,172	86,069	86,537
SURPLUS/SHORTFALL Annual	(653)	(4,144)	(10,124)	(11,559)	(12,566)
Cumulative	(653)	(4,797)	(14,921)	(26,480)	(39,046)

RETURN TO RETAIL AND TO DEPOT

	Year 1	Year 2	Year 3	Year 4	Year 5
REVENUES					
Unredeemed deposits (excl. refillable)	20,502	15,155	9,768	8,998	8,228
Deposit discount - recyclables	20,300	22,082	23,878	24,135	24,392
Deposit discount - non-recyclables					
Distributor recovery fees	43,434	43,434	43,434	43,434	43,434
Waste revenue	(4,783)	(5,152)	(5,510)	(5,536)	(5,561)
Interest on float	3,479	3,479	3,479	3,479	3,479
Total	82,932	78,999	75,049	74,510	73,971
COSTS					
Retail fee	10,324	10,583	10,927	11,101	11,161
Transport retail to depot	3,148	3,240	3,369	3,440	3,455
Depot costs	36,861	37,778	38,998	39,621	39,835
Transport depot to consol. centre	5,966	6,140	6,385	6,519	6,548
Consolidation centre	22,249	22,586	23,161	23,591	23,680
Supplies	945	1,042	1,142	1,169	1,196
Refillables to bottlers	1,794	1,046	1,046	1,046	1,046
Waste transport	1,303	1,435	1,583	1,655	1,726
Agency costs	2,047	2,109	2,185	2,214	2,225
Startup costs	1,000				
Advertising & promotion	2,500	2,000	1,500	1,000	1,000
Research support	5,000	5,000	5,000	5,000	5,000
Total	93,137	92,958	95,296	96,356	96,871
	(10,204)	(13,959)	(20,248)	(21,846)	(22,900)
	(10,204)	(24,164)	(44,411)	(66,257)	(89,157)

CALCULATION OF INTEREST ON FLOAT

	mill		$000
Deposits :			
1 litre and below	1,118.8	$0.15	167,819
Above 1 litre	49.6	$0.30	14,867
Recovery fee			43,434
			226,119
Eight week float			34,788
Interest @ 10%			3,479

BRITISH COLUMBIA CONTAINER AGENCY FINANCIAL PROJECTIONS

SUMMARY OF REVENUES AND COSTS --- ALL REFILLABLE AND RECYCLABLE CONTAINERS, WITH A 60% SWING FROM RECYCLABLE TO REFILLABLE, AND A REDUCTION FROM 95% TO 90% RECOVERY OF REFILLABLES

RETURN TO DEPOT ONLY

	Year 1	Year 2	Year 3	Year 4	Year 5
REVENUES					
Unredeemed deposits (excl. refillable)	14,911	11,022	7,104	6,544	5,984
Deposit discount - recyclables	14,764	16,060	17,366	17,553	17,739
Deposit discount - non-recyclables					
Distributor recovery fee	48,345	48,345	48,345	48,345	48,345
Waste revenue	(3,478)	(3,747)	(4,007)	(4,026)	(4,044)
Interest on float	3,554	3,554	3,554	3,554	3,554
Total	78,096	75,235	72,362	71,970	71,578
COSTS					
Retail Fee					
Transport retail to depot					
Depot costs	41,249	41,950	43,047	43,766	43,927
Transport depot to consol. centre	4,367	4,451	4,595	4,699	4,713
Consolidation centre	29,721	30,045	30,729	31,336	31,414
Supplies	709	779	851	871	890
Refillables to bottlers	2,293	1,265	1,265	1,265	1,265
Waste transport	1,430	1,577	1,742	1,823	1,904
Agency costs	2,085	2,130	2,191	2,223	2,231
Startup costs	1,000				
Advertising & promotion	2,500	2,000	1,500	1,000	1,000
Research support	5,000	5,000	5,000	5,000	5,000
Total	90,355	89,197	90,920	91,983	92,344
SURPLUS/SHORTFALL Annual	(12,259)	(13,962)	(18,558)	(20,012)	(20,765)
Cumulative	(12,259)	(26,221)	(44,779)	(64,791)	(85,557)

RETURN TO RETAIL AND TO DEPOT

	Year 1	Year 2	Year 3	Year 4	Year 5
REVENUES					
Unredeemed deposits (excl. refillable)	14,911	11,022	7,104	6,544	5,984
Deposit discount - recyclables	14,764	16,060	17,366	17,553	17,739
Deposit discount - non-recyclables					
Distributor recovery fees	48,345	48,345	48,345	48,345	48,345
Waste revenue	(3,478)	(3,747)	(4,007)	(4,026)	(4,044)
Interest on float	3,554	3,554	3,554	3,554	3,554
Total	78,096	75,235	72,362	71,970	71,578
COSTS					
Retail Fee	11,055	11,243	11,536	11,729	11,773
Transport retail to depot	3,494	3,561	3,676	3,759	3,770
Depot costs	39,533	40,198	41,242	41,931	42,086
Transport depot to consol. centre	6,621	6,748	6,966	7,124	7,145
Consolidation centre	25,347	25,587	26,127	26,630	26,693
Supplies	709	779	851	871	890
Refillables to bottlers	2,180	1,203	1,203	1,203	1,203
Waste transport	1,258	1,387	1,532	1,603	1,675
Agency costs	2,085	2,130	2,191	2,223	2,231
Startup costs	1,000				
Advertising & promotion	2,500	2,000	1,500	1,000	1,000
Research support	5,000	5,000	5,000	5,000	5,000
Total	100,781	99,835	101,825	103,073	103,466
	(22,685)	(24,600)	(29,453)	(31,102)	(31,887)
	(22,685)	(47,285)	(76,748)	(107,850)	(139,737)

CALCULATION OF INTEREST ON FLOAT

	mil		$000
Deposits :			
1 litre and below	1,145.8	$0.15	171,873
Above 1 litre	36.0	$0.30	10,812
Recovery fee			48,345
			231,030
Eight week float			35,543
Interest @ 10%			3,554